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AUTHOR Williams, Robert D.
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ABSTRACT

A study was conducted to determine if there was a significant mean difference in achievement, as measured by the Advanced Test of the Graduate Record Examination or the Field Test of the Undergraduate Assessment Program, between six departments at the main campus and six departments at the extension campus of Florida Southern College. The relationship between the Advanced Test of the Graduate Record Examination or the Field Test of the Undergraduate Assessment Program and the cumulative grade point averages of students at the main campus and the extension campus was examined. The study also determined if there was a significant mean difference in scores on the Area Test of the Undergraduate Assessment Program between sophomores at the main campus and sophomores at the extension campus. On the Advanced Test of the Graduate Record Examination, the biology department at the extension campus had a significantly lower mean score than the biology department at the main campus. The extension campus had a significantly higher mean score than the main campus in natural science and social science on the Area Test of the Undergraduate Assessment Program. Results also indicated that the political science department at both campuses and the biology department at the extension campus did not have correlations between grade point average and scores on the Advanced Test of the Graduate Record Examination that were significant. (SW)

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A Comparison of Academic Achievement Between Students Attending the Main and Extension Campuses of Florida Southern College

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THE DEGREE OF DOCTOR OF EDUCATION

NOVA UNIVERSITY

1979

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Abstract of a Major Applied Research Project Presented to Nova University in Partial Fulfillment of the Requirements for the Degree of Doctor of Education

A COMPARISON OF ACADEMIC ACHIEVEMENT BETWEEN STUDENTS ATTENDING THE MAIN AND EXTENSION CAMPUSES OF FLORIDA SOUTHERN COLLEGE

By

Robert D. Williams

May, 1979

The purpose of the study was to determine if there was a significant mean difference in achievement, as measured by the Advanced Test of the Graduate Record Examination or the Field Test of the Undergraduate Assessment Program, between six departments at the main campus and six departments at the extension campus of Florida Southern College. The study also measured the relationship between the Advanced Test of the Graduate Record Examination or the Field Test of the Undergraduate Assessment Program with the cumulative grade-point averages of students at the main campus and the extension campus. In addition, the study determined if there was a significant mean difference in scores on the Area Test of the Undergraduate Assessment Program between sophomores at the main campus and sophomores at the extension campus. The sample consisted of students at both campuses who took the Field Test, Advanced Test or the Area Test during the 1978 calendar year. The data was collected by visiting each campus and searching through the various files. A statistical analysis was then conducted in order to determine the mean difference in test scores and the correlation between test scores and grade-point averages. The results of the study indicated

that there was a significant mean difference in achievement, as measured by the Advanced Test of the Graduate Record Examination, between the biology department at the main campus and the biology department at the extension campus. The biology department at the extension campus had a significantly lower mean score than the biology department at the main campus. Interviews were, therefore, conducted with biology department faculty members at the extension campus in order to establish specific recommendations for improvement. The extension campus had a significantly higher mean score than the main campus in natural science and social science on the Area Test of the Undergraduate Assessment Program. The results also indicated that the political science department at both campuses and the biology department at the extension campus did not have correlations between grade-point average and scores on the Advanced Test of the Graduate Record Examination that were significant. It was concluded that the extension campus is providing adequate instruction and curriculum for students especially in lower division classes. The data indicates that the biology department at the extension campus is in need of improvement. It was recommended to administrative personnel at both campuses that the extension campus should be allowed to expand existing programs and to offer a Master of Business Administration degree. If the graduate program in business is successful, then other graduate programs should be considered. Specific recommendations for improvement of the biology department at the extension campus and recommendations regarding faculty awareness of the data were also given to administrative personnel.

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CHAPTER I

INTRODUCTION

In 1960 Florida Southern College (FSC) was asked by the Air Force to develop an extension program at the McCoy Air Base, Orlando, Florida. The purpose of the extension campus was to provide Air Force and civilian personnel stationed at the air base with an opportunity to earn a Bachelor of Science or a Bachelor of Art degree from an accredited college. Because of the acceleration of the Vietnam War, the number of military personnel stationed at the air base grew rapidly. This also caused a rapid increase in the number of students attending Florida Southern College Orlando (FSCO). Because military personnel are often transferred without long-range notice, the Air Force made special arrangements with Florida Southern College to provide seven-week terms whereby a student could complete a three-semester-hour credit course in seven weeks by attending two, three-hour evening sessions per week.

The extension campus is unique in that it is a total evening program that utilizes adjunct faculty. Thus, most of the students work during the day and take classes four nights a week. Faculty members also work in their respective fields during the day and teach courses in their particular subject area at night.

In April, 1973, the Department of Defense announced the closing of the Air Force Base in Orlando. It was at this time that a decision was made to recuit students from the general public for Florida Southern College Orlando. Despite the loss of the air base personnel, and despite the fact that there are two community colleges, one state university, and

one private college in the central Florida area, the program has continued to grow.

At the present time, the main campus of Florida Southern College, which is located in Lakeland, has an enrollment of approximately 1,600 students. The extension campus in Orlando has an enrollment of approximately 500 students, which is approximately one fourth of the total student body enrolled at Florida Southern College, Lakeland. The Orlando campus is often compared with the main campus in terms of achievement. It has often been voiced by college personnel from both campuses that certain departments from the main campus have students who perform better than students from the extension campus and that certain departments from the extension campus have students who perform better than students from the main campus.

The director of the Orlando campus has indicated that he would like to see the extension campus continue to grow and to eventually move into a permanent facility. This would include the development of graduate programs and the offering of special terms to further meet the needs of working students in the central Florida area.

The Orlando campus, however, is a "little brother" to the main campus. All decisions regarding growth must be approved by the main campus. This is particularly true since Florida Southern College takes pride in upholding high academic standards.

After a discussion with the director of the extension campus, it was decided that a statistical analysis comparing academic achievement between the two campuses would be beneficial. The data would primarily be used in order to make recommendations for improvement at both the extension and

main campuses. Because Florida Southern College has an extensive testing program that requires all students to take a sophomore test that covers basic core courses and a senior test that covers their major field, it was decided that a statistical analysis comparing the achievement of students from the two campuses would be feasible.

Another area that was recommended for investigation involved the correlation of grade-point averages (GPA) and scores on the Advanced Test of the Graduate Record Examination (GRE). It appears that Florida Southern College personnel are concerned about the correlation between GPA and scores on the Advanced Test of the GRE. At the present time, students in certain departments at the Orlando campus can not graduate with honors unless they have above a 3.0 GPA and a certain score on the Advanced Test of the GRE. This tends to imply that grading within certain departments is inflated.

Although FSC has an extensive testing program, there has never been a thorough statistical analysis comparing achievement between the two campuses. There has also never been a correlational study of GPA's and scores on the Advanced Test of the GRE. It was for these reasons that the study was conducted.

STATEMENT OF PROBLEM

The problem considered in this study was whether an extension campus should have the autonomy to expand and change programs to meet the specific needs of adult learners.

STATEMENT OF PURPOSE

The primary purposes of this study were to determine if there was a significant mean difference between these two populations in the following:

1. Achievement as measured by the Advanced Test of the Graduate Record Examination or the Field Test of the Undergraduate Assessment Program between the following six departments at Florida Southern College Orlando and the following six departments at Florida Southern College Lakeland: biology, business, English literature, political science, psychology and sociology ($\alpha = .05$).
2. Achievement as measured by the Area Test of the Undergraduate Assessment Program of sophomores at Florida Southern College Orlando and Florida Southern College Lakeland ($\alpha = .05$).

Two additional purposes of the study were to determine the degree of correlation between grade point averages and scores on the Advanced Test of the Graduate Record Examination or the Field Test of the Undergraduate Assessment Program of students at Florida Southern College Orlando and Florida Southern College Lakeland and to provide descriptive data comparing scores on the Advanced Test of the Graduate Record Examination of Students at Florida Southern College Orlando and Florida Southern College Lakeland with national norms.

HYPOTHESES

For the purpose of this study the following hypotheses were made:

1. There will be no significant mean difference in achievement as measured by the Advanced Test of the Graduate Record Examination or the Field Test of the Undergraduate Assessment Program between six departments at the Orlando center of FSC and the Lakeland campus.

2. There will be no significant mean difference in achievement as measured by the Area Test of the Undergraduate Assessment Program of sophomores at the Orlando center of FSC and the main campus.
3. The correlation between grade point averages and scores on the Advanced Test of the Graduate Record Examination or the Field Test of the Undergraduate Assessment Program of students at Florida Southern College Orlando and Florida Southern College Lakeland for each of the ten departments will be equal to 0.00.

PROCEDURE

An appointment was made with the director of testing at Florida Southern College Lakeland. At that time, it was requested that a computer print-out listing GPA's, scores on the Advanced Test of the GRE or the Field Test of the Undergraduate Assessment Program be collected for all sophomores and seniors at FSC Orlando and FSC Lakeland who took the tests from September 30, 1977, to September 30, 1978 (N = 891). Having obtained this data an independent "t" test was then conducted in order to determine if there was a significant mean difference in achievement as measured by the Advanced Test of the GRE or the Field Test of the Undergraduate Assessment Program between six departments at Florida Southern College Orlando and Florida Southern College Lakeland. An independent "t" test was also used in order to determine if there was a significant mean difference in achievement, as measured by the sophomore section of the Undergraduate Assessment Program between departments at Florida Southern College Orlando and Florida Southern College Lakeland. A Pearson "r" correlation was then conducted in order to determine the degree of correlation between GPA's and scores on the Advanced Test of

the GRE or the Field Test of the Undergraduate Assessment Program.

Instructors who were members of departments at the extension campus which scored significantly below departments at the main campus in achievement were interviewed in order to provide information and suggestions for improving achievement as measured by the Advanced Test of the GRE. Although the interviews were unstructured, the questions generally consisted of the following: "Why do you feel that students are scoring lower on the Advanced Test of the GRE?," "Do you feel that there are adequate support services at FSC Orlando?." "Would you give three recommendations for improving the achievement levels of students in your department," and "Do you feel that the course work at FSC Orlando adequately prepares students to take the Advanced Test of the GRE?." Since the study was primarily interested in comparing the Orlando center to the Lakeland campus, the only instructors who were interviewed were instructors at the Orlando center.

The results were then presented in tabular and narrative form. A copy of the final report was then sent to the director of the extension campus, the president of the college, and the director of testing.

DEFINITION OF TERMS

The following terms are listed for understanding:

1. Grade-Point Average - Florida Southern College grades on a four point system where an A = 4, B = 3, C = 2, D = 1, and F = 0. Thus, grade-point average is calculated by totaling the number of points earned and then dividing this total by the number of semester hours the student has taken.
2. Extension Campus - Florida Southern College Orlando (extension campus) is an extension campus of Florida Southern College which

is located in Lakeland, Florida. It is located at the old McCoy Air Force Base in Orlando, Florida.

3. Field Test and Area Test - The Field Tests and Area Tests are from the former Undergraduate Program for Counseling and Evaluation and are tests that are used in conjunction with the Advanced Test of the GRE to make up the Undergraduate Assessment Program developed by the Educational Testing Service. There are currently three Area Tests which include humanities, natural science, and social science and there are twenty-five Field Tests which include such fields as biology, history and psychology.

ASSUMPTIONS

It was assumed that the students who took the various tests had a desire to perform well on the tests and that the conditions of the testing procedures were similar. It was also assumed that the students at the extension campus and the main campus were reasonably matched according to intelligence and educational opportunities. All of the students were assumed to have had equal educational opportunities because they were required to have the same prerequisites before taking either the Area Test of the Undergraduate Assessment Program, the Advanced Test or the GRE, of the Field Test of the Undergraduate Assessment Program.

DELIMITATIONS

The purpose of this study was not to analyze the effects of age, sex, or race on achievement. Although it was considered important to

look for possible trends and explanations, the primary purpose of the study was to establish if there was a significant difference in achievement by departments between the main campus and the extension campus and then to make recommendations if certain departments at the extension campus were scoring significantly below departments at the main campus.

Trying to determine if the Advanced Test of the GRE or the Field and Area Tests of the Undergraduate Assessment are valid instruments was also not considered a purpose of the study. There is a great deal of literature regarding the validity of these instruments. No attempt was made to determine if the testing program at Florida Southern College is useful or if it should be abandoned.

This study was not meant to be a historical study. Thus, various stages of development of the extension campus and the development of the testing program at Florida Southern College were omitted.

LIMITATIONS

Research indicates that there are a number of variables that affect achievement. For the purpose of this study there were three major variables that were considered significant and which the researcher felt could affect achievement as measured by the Area Test, Field Test or the Advanced Test of the GRE. These variables included sex, grade-point average, and age.

The sex of the students, however, was not found to be a significant variable. After analyzing sex by departments, if was found that the six departments were approximately equivalent. For example, males appeared to dominate the business departments at both the extension campus and the main campus while females dominated the education departments at both campuses.

Grade-point average is difficult to control because the grading at the main campus and the extension campus could be different. It was possible, however, to determine the degree of correlation that existed between grade-point averages and scores on the Field Test of the Undergraduate Assessment Program, or the Advanced Tests of the GRE.

A major limitation of the study is the lack of control for age. The average age at the extension campus is approximately thirty-one while the average age at the main campus is approximately twenty. Thus, age could be considered a variable which affected students' scores on the various achievement tests. Analysis of covariance was not used in the study because of the low number of students in some of the departments at the extension campus. It is also impossible to establish the equivalence of the two groups since they were not randomized.

Another limitation of the study is the problem of whether the various tests actually measure student achievement. For the purpose of this study the assumption was made that the tests were valid measures of achievement.

The accounting department at the extension campus has the second highest student enrollment. This department, however, is not required to take a Field Test in accounting at the end of the senior year. Thus, this department could not be used for comparative purposes for the study.

SIGNIFICANCE OF THE STUDY

The extension campus, located in Orlando, Florida, has steadily grown since it was founded in 1960. The enrollment has grown to approximately five hundred and fifty students who attend the total

evening program. A number of graduates of the program have voiced their desire to see graduate programs and possibly some day courses. Faculty members have also expressed a desire to expand programs or to change existing programs.

Many educators have advocated that learning is a life-long process. The Orlando campus could, therefore, be considered a program that provides individuals an opportunity to earn a college degree despite the fact that they are older and employed full-time. If the program is going to provide others the opportunity to continue their education in the life-long process, then it will have to expand.

Change at the extension campus could be considered slow. Although non-traditional courses have been offered, there has not been any major change in curriculum, programs available to students, or expansion into a permanent facility.

One possible explanation for the slow expansion of the Orlando campus is the reluctance of the administration and Board of Trustees at the main campus to expand a non-traditional program, such as the Orlando campus, because of the fear that academic credibility may be lost. Florida Southern College takes great pride in its academic excellence. The first sentence in the Florida Southern College Handbook reads: "Florida Southern College, founded by the Methodist Church in 1885, is an institution of learning where academic excellence is cherished, Christian ideas are encouraged, and the goal of personal development is stimulated."[1]

The extension campus is often compared to the main campus. Faculty meetings are often spent comparing the two campuses on types of students served and student achievement. The campus newspaper as well as the students themselves often make comparisons between the two campuses.

Very few colleges and universities have an extensive testing program like FSC. The students are required to take the sophomore test which is actually an Area Test of the Undergraduate Assessment Program produced by the Educational Testing Service which covers humanities, natural science, and social science. The students are also required to take a senior test which is actually the Advanced Test of the GRE or a Field Test of the Undergraduate Assessment Program. It was, therefore, decided that a comparative study comparing the achievement of the two campuses would provide concrete data rather than speculation or opinions.

The data from the study was considered to be important because it would sensitize the administration and the Board of Directors of FSC to the quality of education that is being maintained at the extension campus. The data was also felt to be important because it would provide the administration and the Board of Trustees with specific recommendations for improving departments at the extension campus which were achieving significantly below departments of the main campus and because the data would provide recommendations for expansion of certain departments which were achieving as well or significantly higher than the departments of the main campus.

During one faculty meeting at the extension campus, the director of the extension campus indicated that certain people at the main campus were somewhat disturbed over the problem of students who had high GPA's but low scores on the senior test. This tended to indicate that grades in certain departments at the extension campus were inflated. Thus, it was felt that the data concerned with the correlation between GPA's and scores on the senior test would be helpful in determining if a correlation existed at one campus and not at another, or if the overall

correlation throughout the departments of both campuses were statistically significant.

Many colleges and universities are reaching the point where they have a large number of adjunct faculty. Thus, this study was also felt to be significant because it adds to the literature that is concerned with the achievement of students who are taught predominately by adjunct faculty and the achievement of students who are taught by predominately full-time faculty.

Robert Hedrick, coordinator of the extension campus, indicated that the study was valuable simply because it is important to periodically evaluate progress in order to make recommendations for improvement. The data will hopefully, therefore, provide a base for future comparison studies concerned with student achievement as the two campuses.

Chapter II contains a review of the literature. The chapter focuses on variables that affect achievement such as sex, age, and grade-point average as well as comparative studies concerned with the achievement of students who are taught by adjunct and full-time faculty and the academic achievement of students who attend main and extension campuses. Chapter III is concerned with the methodology of the experiment. A thorough explanation of statistical design as well as a method of presenting the data is outlined. Chapter IV consists of the results of the study, while Chapter V is devoted to the conclusions, implications, and recommendations of the study. Specific recommendations regarding the improvement of various departments at the extension campus are also listed in Chapter V.

CHAPTER II

REVIEW OF THE LITERATURE

Overview of the Advanced Test of the Graduate Record Examination

At the present time, there are twenty advanced achievement tests in certain subject areas. Each achievement test covers subject matter which a student should have been exposed to in his/her particular major area(s) of study during his undergraduate years in college.

The subject areas include: biology, chemistry, economics, education, engineering, French, geography, geology, German, history, literature in English, mathematics, music, philosophy, physics, political science, psychology, sociology, and Spanish.

The reliability of the various Advanced Tests is very good. The manual reports Kuder-Richardson reliability coefficients of .90 or higher.[2] Validity, however, presents special problems. Although the Advanced Test in conjunction with GPA is a better predictor of success in graduate school, restriction in the range of the grade-point average based on graduate courses makes it difficult to obtain high correlations with this criterion. The literature does indicate in general, however, that the Advanced Tests produce higher correlations than either of the Aptitude Test scores. Validity is also difficult to apply to any given situation because there is variability to the coefficients from department to department and from institution to institution. Thus, it is generally recommended that departments who use the GRE scores should keep careful records on their own students and then determine the validity of the test.

Florida Southern College utilizes the Undergraduate Assessment Program produced by the Educational Testing Service. The Undergraduate Assessment Program has been designed to assess academic progress in several areas of undergraduate study. Examinations offered include Advanced Tests from the Graduate Record Examinations, Aptitude Tests, and Field Tests from the former Undergraduate Program for Counseling and Education.

The Area Tests consist of sections on humanities, natural science, and social science. Norms are available for freshmen and sophomores. At Florida Southern College, the test is administered at the end of the sophomore year. The reliability coefficients for area tests range from .87 to .90.

The Field Tests are very similar to the Advanced Tests of the Graduate Record Examination. The Field Tests, however, cover subject areas that are not covered by the GRE. The reliability coefficients of the field tests would also be considered good.

The Effect of Age on Achievement

Seltzer (1976) was interested in the prediction of academic success for mature students.[3] Central tendency and correlational statistics were used to analyze the effects of age on grade-point average. The data, however, was analyzed separately for freshmen and transfer students and for males and females. The results indicated that older, mature students achieve higher grade-point averages and that there are differences in pattern and degree of predictability among older, mature students. The author concludes by suggesting that other forms of prediction criteria should be used for older students.

The relationship of ACT scores to the grade-point averages of junior college freshmen, when classified by ages, sex, and curriculum, was

analyzed by Groenke (1969).[4] Nine-hundred and fifty-nine freshmen of Mesa Community College, College, Arizona, were used as the subjects in the study. The study was primarily interested in analyzing the relationship of The American College Testing Program (ACT) test battery placement scores to the junior college grade-point averages of freshmen entering as older adults and of freshmen entering as recent high school graduates.

The results of the study indicated that there was a significantly greater relationship between the ACT Scores and GPA's of the freshmen students who were recent high school graduates than between those of the older freshmen students. Thus, scores on the ACT were not considered good predictors of achievement for older students. The study also indicated, however, that there was not a significant difference between the ACT scores and GPA's of the women used in the study.

Van Helden (1975) conducted a study comparing the performance of college students who were 26 years of age or older, 22-25 years of age, and under 22 years of age.[5] The 26 year-old or older group performed significantly higher in achievement than the other two groups. The 22-25 year-old group also scored significantly higher than the group of students under 22 years of age. Again, however, the study indicated that there was little correlation between student performance and high school examination results for older students.

A three-way analysis of variance was performed on the grade-point averages of fourteen hundred thirty-five female nursing students enrolled in twenty-two Associate Degree Nursing programs in Illinois in order to investigate differences in academic success due to age, marital status, and nursing experience.[6] Older nursing students were students who were above twenty-three years of age. The sample also included a

representative sample of ethnic groups.

Older students achieved grade-point averages approximately one grade point higher than the younger students. Married women also received grade-point averages one point higher than single students. There was not a difference, however, in the grade-point averages between students with prior nursing experience and students without nursing experience. The author concluded by stressing the importance of nursing students making a definite commitment to their field of study. This commitment appeared to be a major factor that contributed to the success of the older nursing students.

An investigation was conducted by Moughamian and others (1971) in order to determine the relationship of a student's age, sex, aspiration, and performance on the College Level Examination Program (CLEP).[7] Successful performance on the CLEP was defined as a score ranked 50th percentile or higher.

The results of the investigation indicated that ability, as measured by the American College Test (ACT), seemed to have the strongest relationship to the student's success on the CLEP. It was, therefore, concluded by the author that success on the general CLEP exam is dependent primarily on ability. The results also provided data which demonstrated that younger students did better on the exams than older students. It was the author's opinion that more recent exposure to formal education attributed to the difference in scores between the older and younger students.

Marple (1976) conducted a study in order to explore the personality differences that might exist between a group of adult women students in an undergraduate college and between women of the usual undergraduate age.[8] The California Psychological Inventory was administered to volunteer

students. The scores on 18 scales of the California Psychological Inventory were then compared with scores of a norm group of undergraduate women. The Omnibus Personality Inventory was also administered to continuing education students, and scores on the fourteen scales were compared with those of students in the freshman class (1977) at Wellesley College.

The results of "t" tests comparing scores on all scales indicated that older college women scored significantly higher on the achievement and autonomy scales of the personality inventories. Younger college women scored significantly higher in responsibility, socialization and practical outlook. As a result of the research, the author suggested that faculty members in higher education be made aware of the research so that they could do appropriate career counseling with older college women.

A very thorough study comparing the number of credits attempted, the number of credits earned, the ratio of credits earned to credits attempted for each semester, and cumulative grade point averages between younger and older male veterans was conducted by Wright, Smith, and Burger (1978).[9] The study indicated that older students took a significantly lower number of credits per semester than the younger students took and, therefore, earned a significantly lower number of credits. The older students, however, obtained a significantly higher ratio of hours attempted/hours completed than the younger students. The older students also obtained a significantly higher GPA than the younger students. Although the results also indicated that both groups earned similar proportions of "A" and "B" grades, the older students earned proportionally fewer average or below average grades. The

authors, therefore, hypothesized that older students appear to develop the kinds of adaptive skills that allow them to cope more efficiently with their academic tasks.

The Effect of Sex on Achievement

When Warren (1976) conducted a study concerning the prediction of college achievement among Mexican-American students, interesting findings were uncovered regarding the effects of sex on the achievement of college students.[10] The study revealed that there was no significant difference in equations for the prediction of college grades from test scores and high school grades of Mexican-American students and other students at three Universities of the California State University system. Men and women, however, differed in their prediction equations. The men tended to invariably show higher test scores and lower grades at all levels than did women. Thus, GPA's may not be indicative of what is actually learned by men.

Gadzella and others (1976) conducted a study that was concerned with the relationships between measures on study habits and attitudes, locus of control, achieving tendency, and semester grade-point averages between the sexes.[11] The subjects for the study consisted of thirty-nine males and eighty-one females from East Texas State University. The results showed that females obtained higher scores on study skills and higher semester grade-point averages. Males obtained higher scores on powerful others and chance scales of the locus of control inventory. An interesting finding was that the best predictor of a student's semester grade-point average was his/her score on the study habits scales.

Many studies have been concerned with the comparison of achievement between black and white students. Although Sampel (1969) was concerned

with a comparison of black and white students using the SCAT in predicting college grades, an interesting finding was disclosed regarding the sex of the participants[12]. The sample consisted of one hundred and eighty blacks and whites who were matched on the basis of sex, college, and year in school. A correlation coefficient was computed between the SCAT total score and the cumulative grade-point average. Although the black mean scores were significantly lower than the white mean scores, the black female group's coefficients that were generated were commensurate with college grade-point averages. No correlation existed in the black male group. It was, therefore, hypothesized that sex is an important variable when making academic predictions for college students.

A similar study was conducted by Thomas (1970).[13] The major purpose of the study was to determine to what extent attainment models, which have been primarily applied to white males, predict the educational achievement of blacks and women. The educational attainment models included family, socioeconomic status, mental ability, and high school rank. The author used a very involved statistical analysis. Generally stated, however, the results indicated that the educational achievement process itself varied more by race than by sex. Being a female, however, did appear to produce a modest direct depressant effect on educational achievement. A major conclusion that was drawn by the author was that the presence or absence of race and sex differences in the educational achievement process is primarily contingent upon the influence of socioeconomic status and ability.

In a study conducted by Cole and others (1977), a total of twelve hundred and fifty college students who were starting introductory courses

in thirteen academic disciplines were asked to predict their grade in a particular course.[14] The researchers were primarily interested in determining if the higher grades would be predicted by the males or by the females. The results indicated that entering freshmen males, as well as those with previous college experience, predicted higher grades for themselves than did females.

In a similar study, Roos and others (1977) found that female medical students tended to rate themselves more negatively than the male students did.[15] Each of the students was asked to subjectively rate him or herself on performance in the classroom. The authors indicated that women have been generally conditioned to feel negatively about themselves because they are working in a predominantly male occupation.

Studies concerned with the comparison of achievement between males and females, utilizing different instructional formats, are numerous. Although Somonson and Bulland (1975) were primarily concerned with student expectation of predicting academic success, they were also interested in whether males or females tend to learn better under self-instruction, small group instruction, or self-instruction with non-required group sessions. Data obtained from an average of one hundred and fifty nine students enrolled in three consecutive semesters indicated that female students were relatively more successful than males in the three instructional formats tested.

Similar results were found by Nation (1977) in a study that was designed to examine male and female performance in a programmed achievment learning center.[17] One-half of the students were placed in a programmed achievement condition group requiring weekly quiz mastery while the remaining students were placed in a standard control condition

group which required no mastery. Students in the programmed achievement condition demonstrated higher performance on weekly quizzes and the major exam. Females increased more rapidly through the programmed series. There was no significant difference, however, between males and females in the standard control group.

Hollis and Woods (1977) conducted a study that was designed to investigate the relationships between internal and external locus of control and academic achievement for boys and girls over a nine month period.[18] Internal-external control was measured by the Intellectual Achievement Responsibility Questionnaire which yields a (+1) score for belief in internal responsibility for success and a (-1) for internal responsibility for failure. The sample consisted of a total of two hundred and seventy-nine third grade children. The achievement measure for the study was the arithmetic and reading batteries of the California Test of Basic Skills. The results of the study indicated that improvements in measures of internal-external control trait could result in an important predictor of academic performance for boys. It was not found, however, to be a good predictor of achievement for girls.

A questionnaire consisting of one hundred twenty items measuring sex-role behavior and attitudes, educational expectations, self-assessment, and grades was administered to three thousand students in the seventh through twelfth grades in three school districts in a study conducted by Bender (1976).[19] A major portion of the study dealt with "academic competence" which was defined as the discrepancy between actual and predicted grade averages based on the correlation of scholastic aptitude and grades in the sample. Results indicated that girls were found to be superior to boys in average academic competence at every grade level. No sex differences, however, were apparent in the accuracy of self assessment of school work or in post-high school educational plans.

The effects of sex, verbal ability, test anxiety, ideational fluency, and training procedures on formulating hypotheses test performance were studied by Frederiksen and Evans (1972).[20] Males and females were given training in ideational fluency which consisted of the number of ideas that could be developed for a topic and verbal ability which was related to scores reflecting the quality of responses. The training actually consisted of presenting models of acceptable responses that stressed either quantity or quality performance. The results of the study indicated that females were, in general, superior to males in producing quantity of responses.

Schneider and Green (1977) conducted a study entitled "Need for Affiliation and Sex as Moderators of the Relationship between Need for Achievement and Academic Performance."[21] The authors hypothesized that, if students had a high need for achievement and a low need for affiliation, as measured by the Edwards Personal Preference Scale, they would earn higher grades than students who had a high need for achievement and a high need for affiliation. They were also interested in knowing if there would be a difference between males and females. The results indicated that both males and females who had a high need for achievement and a low need for affiliation did earn higher grades than students who had a high need for achievement and a high need for affiliation. There was, however, no significant difference between males and females.

A great deal of research has been devoted to the differences in performance levels of males and females in different academic disciplines. Males, for example, generally perform better in mathematics while females generally perform better in reading. Mullis (1975) attempted to analyze the differences in male and female performance in an article entitled "Educational Achievement and Sex Discrimination."[22] The author alludes to reports released by

the National Assessment of Educational Progress that direct attention to male-female differences in achievement across several learning areas. At the age of nine, males and females do equally well on numerical operation, geometry, and measurement. By adulthood, however, males have a substantial advantage. Females generally read and write better than males which are two prerequisites for high achievement in areas such as political science or social science. The author hypothesizes that much of the differences in academic performance between males and females can be attributed to the existence of social and curriculum biases.

Fennema and Sherman (1977) found similar results in a study entitled "Sex-Related Differences in Mathematics Achievement, Spatial Visualization and Affective Factors."[23] The authors were primarily interested in learning if males were invariably superior in mathematics achievement and spatial visualization and if the differences between the sexes in mathematics increases with age and/or difficulty. The data did not support the expectations that males are invariably superior in mathematics. The authors indicated that the differences in achievement between the sexes can be attributed to socio-cultural factors.

A very comprehensive study was conducted by Merkel (1977) in order to determine the achievement level in mathematics of ninth graders in eight public schools, to determine the students' attitudes toward mathematics, to provide data regarding sex-differentiated attitudes toward mathematics that could be used to isolate factors influencing attitudes toward mathematics, and to correlate attitude and achievement data for the sample studied.[24] The author found that there were three major components in attitudinal orientation toward mathematics. The first component consisted of the students' general attitudes toward math as a

subject. The results of the study indicated that there was no difference between the attitudes of the male and female students toward math as a subject. The second component involved the learner's self-concept and the sex-role stereotyping dimension. The third factor indicated that parents of males usually have expectations of high mathematical achievement in their sons.

The understanding of factors related to sex differences in mathematical achievement was the primary focus of a paper written by Fox (1977).[25] The author was also interested in learning why females elect or fail to elect to enroll in advanced courses in mathematics. The results indicated that women's decisions to elect or not to elect to take advanced courses in mathematics centered around their perception of the usefulness of mathematics for future educational and career plans and around the support or lack of support from significant others. The study also indicated that these factors are influenced by the stereotype of mathematics as a male domain. The author concluded by taking the position that sex differences in mathematical achievement is influenced in part from social factors.

An investigation concerning sex differences in mathematics with elementary school students was conducted by Sewald (1977).[26] The author measured the interaction process that takes place between teachers and second grade students in the areas of reading and mathematics. The results indicated that boys perform better on tests in mathematics while girls perform better on tests in reading. The interaction analysis, however, indicated that teachers made relatively more academic contact with girls in reading and more academic contact with boys in mathematics. The study also revealed that, although there were no differences

in achievement between males and females at the beginning of the school year, there were marked differences at the end of the school year.

Kester (1971) conducted a study entitled "Sex Separation-New Strategy for Discrimination" in order to determine if sex differences were significant enough to warrant different instructional programs.[27] The author noted that sex differences disappeared under identical systems of training and that individual differences became more powerful than sex differences in the areas of student achievement. The author, therefore, concluded that the differences between the sexes in achievement and aptitude were not sufficient enough to warrant separating the sexes for instructional purposes.

Attempting to determine if college women actually overachieve was the primary focus of a study conducted by Hewitt (1975).[28] The author conducted a comparative analysis between grade-point average, scholastic aptitude and college majors. The results indicated that sex differences in over-achievement is probably an artifact of sex differences in choosing major fields of study.

The relationships between achievement measures and aptitude, sex, and personality traits were explored in a sample of two-hundred and twenty-six eighth grade students in an upper middle class school by Merrifield and Hummel (1977).[29] The results of the study indicated that sex did not prove to be a significant predictor of achievement.

Smith (1974) was interested in determining if high school counselors would be influenced by students, sex, and ethnic groups when predicting the academic success of students and when choosing the appropriate careers for students.[30] The study was conducted by providing counselors with four hypothetical cases. The results, using

analyses of variance and covariance, indicated that variation in sex and ethnic groups did not produce variations in counselors' decisions regarding the academic success and career choices of students.

Some universities have experimented with having certain departments require students to perform to a certain standard during their freshman year before they are allowed to continue in their program. Otto (1977) conducted a study to determine if this type of procedure is empirically sound.[31] The results indicated that departments were justified in requiring students to meet certain standards before continuing in their program. A major finding of the study, however, indicated that freshmen men and women varied significantly in academic achievement. The author, therefore, recommended that male and female students be evaluated separately.

A great deal of controversy regarding declining scores on college entrance examinations has taken place during the past ten years. Munday (1976) conducted a study to determine who is taking the test and how well they are being prepared before taking the exam.[32] Analysis of the ACT over the past ten years has indicated that different people are taking the test and that they are generally less prepared for the exam than previously. The analysis also showed that there has been a decline of about two percent to three percent of a standard deviation per year. Although the scores of men have not declined appreciably over the last five years, the scores of women have declined considerably. The author concludes by indicating that this trend is probably the result of an increase in the percentage of women among ACT-tested students.

The Effect of Race on Achievement

The effect of race on achievement has been an area of concern for educators for many years. Although race is not a significant variable in this study, a few studies concerning the effect of race on achievement are cited.

Patchen and others (1976) were concerned with descriptively comparing black and white students with respect to various outcomes.[33] The outcomes included: effort, academic performance, aspiration, and racial opinion change. Interrelationships between various outcomes were also explored. The results of the study indicated that black students do not differ significantly from white students on academic effort or absence from school. The study also revealed that the black students and the white students were similar with respect to their educational and occupational aspirations. Blacks, however, did have significantly lower achievement scores and grades.

Toultatos and others (1977)[34] conducted a study that was concerned with academic performance in black and white children and the interaction of race with other variables on school achievement. Generally, the results indicated that the black children scored lower than the white children and fell farther behind as they progressed from grade to grade.

Matching students and teachers on the basis of race in order to improve achievement was the topic of a study conducted by Sheehan and Marcus (1977).[35] It was hypothesized that teachers of the same race would be able to relate better to the children and, therefore, result in an increase in academic achievement. The results, however, indicated that matching students and teachers on the basis of race did not improve student performance.

Comparison of Off and On Campus Programs and Day and Evening Students

Although there are no studies comparing achievement via the advanced test of the GRE between a main campus and an extension campus, there are a number of studies that are concerned with the comparison of achievement between students attending day and evening classes. Since the extension campus at Florida Southern College is a total evening program, this type of literature provides a base for further understanding.

Ulmer (1965) conducted a study comparing the achievement of students in day sections of six junior college courses with that of students in parallel evening sections of the same course.[36] The author was also interested in determining if the age of students was a factor related to achievement. Achievement was measured by comparing the results of a pretest with evaluations made at six-week intervals. The results indicated that the evening students performed at least as well as the day students on both teacher constructed and standardized tests. Young, low-ability students, however, performed better in evening courses than young, low-ability students in day courses.

Wientge and Lahr (1966) found similar results in a study that was concerned with the influences of social climate on adult achievement.[37] The authors compared the achievement of students in evening classes and the achievement of students who attended evening classes and also spent two weekends at a residential center located on the campus. The authors expected the students who had social experiences on the campus to achieve higher than the students who only attended classes in the evening. The results, however, indicated that there were no significant differences in achievement between the two groups.

During the late 1960's and early 1970's, student enrollment in colleges increased so much that many institutions began to offer off campus evening programs in order to accommodate the number of students requesting admission to the college. Some administrators, however, voiced concern over the quality of the students attending the campuses and over the quality of instruction the students were receiving.

Sicuro (1965) conducted a study that compared the academic aptitudes, values, and personal and background characteristics of students in off-campus centers with that of students on the central campus.[38] Two-hundred and seventy-three freshmen at Kent State University during the Fall of 1963 were chosen as subjects for the study. ACT scores, high school rank, and values, as measured by the Disney-Raskens Questionnaire, were compared between the two populations. The results of the study indicated that the students who were enrolled in the off-campus centers scored significantly lower on the ACT than students who were enrolled at the main campus. There were no significant differences, however, in the high school rank or in the attitudes and values between the students at the two campuses.

Jones (1964) was also interested in measuring the effectiveness of extension campuses as compared to the main campus of Long Beach City College.[39] Questionnaires were sent to the graduates of two off campus programs of Long Beach City College in order to determine the quality of instruction at the extension campuses. Certain students were also interviewed in order to obtain more indepth information. Twenty-seven percent of the people who responded to the questionnaire rated the off campus programs as excellent while fifty-eight percent rated the programs good. Thus, eighty-five percent rated the off campus programs as being above average. The author made the conclusion that the extension campus programs

were comprehensive, well structured, well taught, well organized and pertinent to commu[illegible]eeds.

A comparative study of characteristics of evening students was the primary purpose of a study conducted by Garret (1969).[40] Eight-hundred seventeen questionnaires were returned by students who attended college in the evening during the Fall term, 1968, at Los Angeles Pierce College. The results indicated that there was an increase of full-time students taking evening courses, an increase of single students, an increase of students who were employed in sales and an increase of students who planned on going into some type of administrative work. There was a decrease in the median age of students and the number of students with children. The number of professional people taking courses had also decreased.

Williams (1977) was interested in learning why students chose to attend Florida Southern College Orlando, an extension campus evening program, instead of surrounding colleges and universities.[41] The results of the questionnaires that were returned by students indicated that they chose to attend the extension campus because of the number of courses that were offered at night, the campus location, the special seven week term that was utilized at the extension campus, and the humanistic approach conveyed by faculty and administration.

Sutherland (1975) conducted a study entitled "An Evaluation of Individualized Instruction for Evening/Part-time Students of Business Administration".[42] Evening students from a predominately Mexican-American population were assigned to three different instructional groups. Group 1 consisted of a totally individualized program that utilized study packets. Group 2 received instruction by the lecture discussion method,

and Group 3 received instruction by lecture discussion plus supplemented learning packets. Group 3 received test scores that were significantly higher than the other two groups. The results, however, were not felt to be valid since only twenty percent of the students actually used the study packets. The author indicated, however, that the results clearly showed that marginal results can be expected with evening students if study packets are the only means of instruction.

A Summary Of The Review Of Literature

The literature indicates that older students typically have higher grade-point averages than younger students. Older students, however, seem to perform lower on college entrance examinations, such as the ACT or SCAT.

The effects of sex on achievement appears to be inconsistent, men generally appear to have lower grades than test scores would predict and women appear to have better study skills. The literature also indicates that females generally have lower academic expectations and score lower in mathematics. Some of the differences, however, have been attributed to social and curriculum bias.

Students who take courses in the evening usually perform as well as daytime students. Evening students also indicated by way of questionnaires that they feel that the instruction which they have received is as good as the instruction received by daytime students.

Although the advanced test of the Graduate Record Examination has been found to have good reliability and respectable content validity, very little research comparing departments or universities has been done. This is probably due to the fact that most colleges and universities do not require that it should be taken.

For the purpose of this study, the literature indicates that the students at the extension campus who are all evening students should perform as well as the students at the main campus who are predominately day students. The mean age of students at the extension campus is higher than the mean age of students at the main campus. This may suggest that the students at the extension campus will have higher GPA's than the students at the main campus which may result in a lower correlation between GPA's and scores on the advanced test of the GRE.

CHAPTER III

METHODOLOGY

Population

The population consisted of the students who attended FSC Orlando and FSC Lakeland during 1978 calendar year. (N = 2,150).

Sample

The seniors at Florida Southern College Orlando and Florida Southern College Lakeland who took the Advanced Test of the Graduate Record Examination or the Field Test of the Undergraduate Assessment Program and sophomores who took the Area Test of the Undergraduate Assessment Program during 1978 comprised the sample for this study (N = 891). Since the writer was primarily interested in comparing achievement levels of students by departments, it was decided to include only the 1978 calendar year. The departments included biology, business, English literature, political science, psychology and sociology. The senior and sophomore tests are usually offered in January, May and October.

Method of Data Collection

The following procedures were used in the collection of data:

1. Approval was obtained from Robert Hedrick, coordinator of the extension campus, to conduct the study.
2. Approval was also obtained from Dick Burnett, director of testing at Florida Southern College Lakeland, to use the data compiled by the college in the study.
3. Senior test scores, sophomore test scores, and students' grade-point averages for the calendar year 1978 were obtained at the

extension campus for students in the six departments by searching through the files in the administrative office.

4. Senior test scores, sophomore test scores, and students' grade-point averages for the calendar year 1978 for students in the six departments were also obtained at the main campus by searching through the files at the testing center.
5. An analysis of sex by departments was made in order to determine if the ratio of males and females per department was approximately equivalent between the two campuses.
6. The scores on the Advanced Test of the GRE or the Field Test of the Undergraduate Assessment Program were categorized by departments and campuses. The scores of the Area Test of the Undergraduate Assessment Program were categorized by campuses into three subtests consisting of natural science, social science and humanities.
7. An independent "t" test was conducted in order to determine if there was a significant mean difference in achievement, as measured by the Advanced Test of the GRE or the Field Test of the Undergraduate Assessment Program, between the following six departments at the Orlando campus and the following six departments at the Lakeland campus: biology, business, English literature, political science, psychology and sociology. An independent "t" test was also conducted in order to determine if there was a significant mean difference in achievement, as measured by the Area Test of the Undergraduate Assessment Program, between the Orlando and Lakeland Campuses ($\alpha = .05$).
8. A Pearson "r" correlation was conducted in order to determine

the relationship of grade point average to scores on the Advance Test of the GRE or the Field Test of the Undergraduate Assessment Program.

9. Faculty members who taught in departments at the Orlando campus were interviewed if students in their departments scored significantly lower than students in departments at the Lakeland Campus in order to establish specific recommendations for improvement.
10. The results of the study were presented in both tabular and narrative form to the director of the extension campus and the director of testing.

Statistical Design

An independent "t" test was used to determine if there was a significant mean difference in achievement between the two campuses. Analysis of variance or covariance were not used because of the loss of degrees of freedom that would have existed because of the small number of students in certain departments at the extension campus. Sex was not considered a major variable because the departments were approximately equivalent regarding the number of males and females in departments at the two campuses. Grade-point average was also not considered to be a significant intervening variable because the two campuses are completely independent regarding grading standards. Thus, it was impractical to consider equating the two campuses on grade-point average.

A Pearson "r" correlation was conducted in order to determine the degree of relationship that existed between grade point averages and scores on the Advanced Test of the GRE or the Field Test of the Undergraduate Assessment Program. This data was felt to be important in

order to help determine if certain departmental grades were inflated.

Age was considered a significant variable since the average age at the Orlando campus is approximately thirty-one while the average age at the main campus is approximately twenty. It was felt, however, that, if age was a variable that influenced achievement on the various tests, it should have been a consistent influence throughout most of the departments.

Since the primary differences between the two campuses were that students at the extension campus only attended class at night and were taught totally by adjunct instructors, it was hypothesized that there would be no significant difference between the two campuses on achievement. Thus, there was no supportive data to suggest that any one department would score higher than another department. Because students appear to have higher GPA's than prior years but lower scores on standardized achievement tests, it was hypothesized that the correlation between the GPA's and scores on the Advanced Test of the GRE or the Field Test of the Undergraduate Assessment Program for each of ten departments would equal 0.00.

CHAPTER IV

RESULTS

The results of the study indicated that there was a significant mean difference in achievement, as measured by the Advanced Test of the GRE or the Field Test of the Undergraduate Assessment Program, between FSC Orlando and FSC Lakeland in one department. The biology department of FSC Orlando had a mean score on the Advanced Test of the GRE of 461.73 while the biology department of FSC Lakeland had a mean score of 537.18. The calculated "t" valuc came to 2.52 which was significant at the .05 level.

The business department at FSC Orlando had a mean score of 431.89 and the business department at FSC Lakeland had a mean score of 400.63. Although the business department of FSC Orlando scored higher, it was not significant at the .05 level.

The English literature departmant at FSC Lakeland had a mean score of 443.33 as compared to a mean score of 400 in the English literature department of FSC Orlando. The mean difference, however, was not significant at the .05 level. Since there were only four students who took the Advanced Test of the GRE in English literature during 1978 at both campuses, the effectiveness of the comparative analysis is questionable.

The mean score on the Advanced Test of the GRE in political science at FSC Orlando was 380 while the mean score in political science at FSC Lakeland was 426.66. The critical "t" value for fourteen degrees of freedom was 1.761 while the actual "t" value was 1.66. Thus, there was not a significant mean difference between the two departments on the Advanced Test of the GRE.

The psychology department at FSC Orlando had a mean score on the Advanced Test of the GRE of 428 and the psychology department at FSC Lakeland had a mean score of 452.5. Although the psychology department of FSC Lakeland had a higher mean score than FSC Orlando, the difference was not significant at the .05 level.

The mean score on the Advanced Test of the GRE in sociology at FSC Orlando was 335 while the mean score in sociology at FSC Lakeland was 365.18. The critical "t" value for thirty-nine degrees of freedom was 1.684. The actual calculated "t" value was 1.67. Thus, there was not a significant mean difference between the two departments on the Advanced Test of the GRE in sociology at the .05 level. The mean score and "t" value for each of the twelve departments at the two campuses can be found in Table 1.

The Area Test of the Undergraduate Assessment Program consists of three parts. The three sections include natural science, social science and humanities. The critical "t" value for approximately five-hundred eighty-seven degrees of freedom consisted of 1.645 for all three sections.

The calculated "t" value in natural science was 2.40. Thus, FSC Orlando had a significantly higher mean score in natural science than did FSC Lakeland. In social science, the Orlando campus again scored significantly higher than the Lakeland campus, with a calculated "t" of 6.45. The calculated "t" value in humanities was 1.08. Thus, there was no significant mean difference in humanities between sophomores who took the Area Test at the two campuses. The number of students who took each section of the Area Test and calculated "t" values are further illustrated in Table 2.

TABLE 1

Mean Scores and "t" Values on the Advanced Test of the GRE or the Field Test of the Undergraduate Assessment Program Between Six Departments of the Main and Extension Campuses of FSC

Departments	Mean Score Orlando Campus	Mean Score Lakeland Campus	df	"t" .05	"t" value
Biology	461.73	537.18	53	1.67	2.52 *
Business	431.89	400.63	161	1.64	.90
English Literature	400	443.33	2	2.92	.21
Political Science	380	426.66	14	1.76	1.66
Psychology	428	452.5	20	1.72	.71
Sociology	335	365.18	39	1.68	1.67

* p. < .05

TABLE 2

"t" Values of Subtests of the Area Test

Sections of Area Test	"t" .05	"t" value	Campus Higher Mean Score	df
Natural Science	1.64	2.40 *	Orlando	587
Social Science	1.64	6.45 *	Orlando	587
Humanities	1.64	1.08	Orlando	588

* P. < .05

Only one department at either of the campuses scored a higher mean score than the national norms adopted by the Undergraduate Assessment Program (1971-1974) on the Advanced Test of the GRE or the Field Test of the Undergraduate Assessment Program. The national average on the Field Test of the Undergraduate Assessment Program in business is 431. The mean score on the Field Test of the Undergraduate Assessment Program in business at FSC Orlando was 431.89. Thus, the business department at FSC Orlando scored slightly higher than the national norm. The mean score in business at FSC Lakeland was 400.63. The national norms for the Advanced Test of the GRE or the Field Test of the Undergraduate Assessment Program and the mean scores in six departments at the main and extension campus can be found in Table 3.

Table 3

National Norms and Mean Scores on the Advanced Test of the GRE or the Field Test of the Undergraduate Assessment Program

Departments	National Mean Score	Orlando Mean Score	Lakeland Mean Score
Biology	563	428	452.5
Business	431	431.89	400.63
English Literature	487	400	433.33
Political Science	461	380	426.66
Psychology	477	428	452.5
Sociology	429	335	365.18

FSC Orlando had a higher mean grade-point average than FSC Lakeland in every department. The psychology department at the Orlando campus had a mean grade-point average of 3.32. This was the highest grade-point average of the ten departments. The psychology department at the Lakeland campus had a mean grade-point average of 2.86. This represented a difference of .46.

The biology department at FSC Orlando had a mean grade-point average of 3.14 while FSC Lakeland biology department had a mean grade-point average of 3.10. Thus, there was only a .04 difference between the two departments.

The mean grade-point average for the business department at FSC Orlando was 3.06 and the mean grade-point average for the business department at FSC Lakeland was 2.78. This calculated to a .28 difference between the mean grade-point averages of the two departments.

The political science department at the Orlando campus had a mean grade-point average of 3.01 while the political science department at the Lakeland campus had a mean grade-point average of 2.88. This came to a difference of .13 between the mean grade-point averages of the two departments.

The sociology department at FSC Orlando had a mean grade-point average of 2.93. This was the lowest grade-point average of any department at the Orlando campus. The sociology department at FSC Lakeland had a mean grade-point average of 2.84. This represented a .09 difference between the mean grade-point averages of the two departments. This also represented the second lowest difference between the mean grade-point averages of the two departments. The mean grade-point averages of the ten departments are further illustrated in Table 4.

TABLE 4

Mean Grade-Point Averages of the
Orlando and Lakeland Campuses

Departments	Mean GPA	Difference
Psychology		
Orlando	3.32	.46
Lakeland	2.86	
Biology		
Orlando	3.14	.04
Lakeland	3.10	
Business		
Orlando	3.06	.28
Lakeland	2.78	
Political Science		
Orlando	3.01	.13
Lakeland	2.88	
Sociology		
Orlando	2.93	.09
Lakeland	2.84	

A Pearson product-moment correlation coefficient (r) was conducted in order to determine the degree of relationship between scores on the Advanced Test of the GRE or the Field Test of the Undergraduate Assessment Program and grade-point average. A Pearson "r" correlation of .64 was obtained by the biology department at FSC Lakeland. This correlation was significant at the .05 level. The biology department at FSC Orlando, however, received a Pearson "r" correlation of .07. Thus, essentially no correlation existed between scores on the Advanced Test of the GRE and grade-point average at the Orlando campus.

The business departments at FSC Orlando and FSC Lakeland received correlations of .43 and .58 respectively. Both of these correlations were significant at the .05 level. The number of students who took the Field Test at the Lakeland campus consisted of 108 and the number of students who took the business Field Test at the Orlando campus consisted of 34.

The political science departments at both campuses failed to have significant correlations between scores on the Advanced Test of the GRE and grade-point average. Both campuses, however, had very few students who took the test during the "78" calendar year. The political science department at FSC Lakeland had a correlation of .47 and the political science department at FSC Orlando had a correlation of .40.

The highest correlation (.71) was obtained by the psychology department at FSC Orlando. The total "n" size, however, consisted of only ten students. The psychology department at FSC Lakeland had a Pearson "r" correlation of .66. Both of these correlations were significant at the .05 level.

TABLE 5

Significant Levels, Correlation Coefficients and Sample Sizes for Ten Departments at FSC

Departments	N	Correlation Coefficient	Level of Significance .05
Lakeland			
Biology	31	r.64	r.29
Business	108	r.58	r.16
Political Science	9	r.47	r.58
Psychology	12	r.66	r.49
Sociology	22	r.47	r.35
Orlando			
Biology	23	r.07	r.35
Business	34	r.43	r.29
Political Science	4	r.40	r.90
Psychology	10	r.71	r.54
Sociology	14	r.54	r.45

Regarding the hypotheses for this study the results indicated:

1. There was a significant mean difference in achievement, as measured by the Advanced Test of the GRE, between the biology department of the Lakeland campus and the biology department of the Orlando campus. Therefore, the null hypothesis stating that there would be no significant difference in academic achievement between six departments at FSC Orlando and

FSC Lakeland was rejected.

2. There was a significant mean difference in achievement on two sections of the Area Test of the Undergraduate Assessment Program between the Orlando and Lakeland campuses. Therefore, the null hypothesis stating that there would be no significant difference on the Area Test between the two campuses was rejected.
3. Seven of the ten departments at both campuses had a significant correlation between scores on the Advanced Test of the GRE or the Field Test of the Undergraduate Assessment Program and grade-point average ($\alpha = .05$). The null hypothesis for these seven departments was, therefore, rejected.
4. Three of the ten departments at both campuses did not have a significant correlation between grade-point average and scores on the Advanced Test of the GRE or the Field Test of the Undergraduate Assessment Program ($\alpha = .05$). The null hypothesis for these three departments was not rejected.

Both biology instructors indicated during the interviews that students in biology do not tend to take the senior test seriously. It was felt that some students do not even prepare for the exam. It was, therefore, recommended that a policy be considered which would require biology students to score above the tenth percentile before they could graduate with honors.

Another area of concern was "prerequisite courses" and required courses needed in order to graduate with a major in biology. Apparently, the Advanced Test of the GRE covers areas in biology that students may have had little opportunity to learn. This has mainly resulted because

the core courses required for biology majors at FSC do not necessarily cover the course content that is on the Advanced Test of the GRE. Since the number of biology majors is low, it sometimes becomes necessary to postpone or to cancel classes. This often results in students being out of sequence. Thus, some students may not have all of the necessary pre-requisite courses before they enroll in a class.

One recommendation that was made was to have an established sequence of courses for the entire year. Then, students would not be able to postpone a class in their major because it would only be offered once during the year. Another recommendation was to require students to take select courses before they are allowed to take the senior test. The number of required courses should be increased so that instructors can more adequately cover the material that is contained on the Advanced Test of the GRE.

Both instructors felt that the lab facilities at Boone High School were more adequate than those at the Orlando campus. It was felt that the lab at the Orlando campus was not large enough to meet the needs of the students.

The instructors felt that the main campus was supportive of the extension campus. This support was measured by their willingness to provide specimens for lab work and by their willingness to supply films.

CHAPTER V

CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

Conclusions

As a result of this study, the following conclusions have been made:

1. The achievement levels of students in the departments of business, English literature, political science, psychology and sociology at FSC Orlando and FSC Lakeland are approximately equivalent, with the exception of the biology department at the Orlando campus which has a significantly lower achievement level than the biology department at the main campus.
2. The correlation between grade-point averages and scores on the Advanced Test of the GRE or the Field Test of the Undergraduate Assessment Program between the departments of the two campuses are approximately equivalent, with the exception of the biology department of FSC Orlando which is significantly below the correlation of the biology department at FSC Lakeland.
3. The grades in the biology department at FSC Orlando are inflated.
4. The lower division curriculum at FSC Orlando in the areas of natural science, social science and humanities is sufficient.
5. Students at FSC Orlando receive higher grade-point averages than students at FSC Lakeland.

FSC Lakeland had a higher mean score on the Advanced Test of the GRE in every department except the business department. The only department

in which there was a significant mean difference in achievement, however, was the biology department. It is important to note, however, that the mean difference in achievement between the sociology department at FSC Lakeland and FSC Orlando was close to being a significant difference at the .05 level. The critical "t" value was 1.68 while the actual calculated "t" value was 1.67. Thus, the data provides evidence that the achievement level of students in sociology, at FSC Orlando, as measured by the Advanced Test of the GRE, is below the achievement levels of students in the sociology department at FSC Lakeland.

The director of the extension campus indicated that he felt that the scores of students in the biology department at the extension campus would improve during the 1979 calendar year, partially because of new lab facilities which have been purchased for the lab at Boone High School. The director as well as two instructors in the biology department at FSC Orlando also agreed that consideration should be given over the possibility of increasing the number of core courses in biology.

Although there was no significant difference between scores on the Advanced Test of the GRE in English literature between the two English departments, the small sample size of four makes the comparison of little value. Only one student at the Orlando campus actually took the Advanced Test in English literature during the 1978 calendar year.

Since the correlation between grade-point averages and scores on the Advanced Test of the GRE in biology was .07, it appears reasonable to conclude that the grades in the biology department at FSC Orlando are inflated. The biology department at FSC Lakeland had a correlation coefficient of .64 between the two variables. This correlation was

considered significant at the .05 level. The biology department at FSC Orlando, however, had a correlation coefficient which indicated that there was little correlation between the two variables.

Since many of the students who attend FSC Orlando are older students who may have earned college credit at another institution over ten years ago, it is surprising that they scored well on the Area Test of the Undergraduate Assessment Program. One can conclude that the lower division (freshmen and sophomore) curriculum, as well as instruction, is of good quality at FSC Orlando. One may also conclude, however, that many of the older students have experienced much of what was being asked on the Area Test. One variable to be considered is that many students do transfer in hours. Thus, it would be incorrect to assume that the high scores on the Area Test of students at FSC Orlando could be totally attributed to sound curriculum and instruction.

This study contributes to the current literature that indicates that older students generally have higher grade-point averages than younger students. The Orlando campus had a higher grade-point average than the Lakeland campus in every department. This difference ranged from a low of .04 in the biology department to a high of .46 in the psychology department. One explanation for the difference is that older students often go beyond what is expected of them on assignments. This, therefore, could contribute to higher grading by instructors. Another explanation is that faculty members of FSC Orlando could simply have different grading standards than faculty members of FSC Lakeland or that there is a tendency for instructors not to give lower grades to students who approximate their own age.

Age does not appear to be a significant variable that affects the performance of students on the Advanced Test of the GRE or the Field Test of the Undergraduate Assessment Program. If it had been a significant variable, it should have been consistent at least through the majority of the departments. The results, however, indicated that there was only one department that had a significantly lower mean score than its corresponding department. Although the literature indicates that older students do not do as well on general aptitude tests such as the ACT, it appears that there is not a significant difference in tests scores between older and younger students on tests that are designed to measure their knowledge of their perspective college major.

Implications

The implications of the study for FSC Orlando are that the extension program is a successful program that maintains good academic standards and that lower division curriculum is particularly successful in producing the high academic achievement of students. The only exception to the current measured success of the program is the low achievement of students on the Advanced Test of the GRE in biology. Thus, another implication of the study is the need for the college to meet with certain administrative and instructional personnel in order to develop a plan to insure higher achievement scores of students who major in biology at FSC Orlando. There also appears to be a need to monitor the achievement score of students who are sociology majors at the Orlando campus.

Another implication of the study for FSC Orlando is that there appeard to be enough academic data available to indicate that the development of a graduate level curriculum in the area of business is

warranted. This could include the offering of a master's degree in business administration, along with a master's degree in human relations in business. Students who have graduated in business have already expressed a desire to have such a graduate level program available to them. If these graduate programs were successful, it would be feasible to consider other graduate level programs at FSC Orlando.

Since the overall data indicates that the FSC Orlando program is academically successful and that graduate level programs should be considered, there appears to be a need for the college to consider the purchase of a larger facility or the expansion of the existing facility. Day classes and special weekend classes could also be considered as ways to expand existing or new programs for students.

An implication of the study for the faculty of the extension campus is that they are doing a good job of instructing students, especially in the lower division subjects of humanities, social science, and natural science. Thus, despite the fact that approximately 95% of the faculty are adjunct, the achievement levels of the students, except in the area of biology, are comparable to the main campus.

Another implication for the faculty of the extension campus is that they should be sensitive to the fact that students at the extension campus do tend to have higher grade-point averages but lower scores on the Advanced Test of the GRE. Although biology is the only department in which there is a significant difference in achievement, all of the departments at the Orlando campus had higher mean score grade-point averages than the corresponding departments at the Lakeland campus.

The study indicates that the overall achievement of students at

FSC Orlando is comparable to FSC Lakeland. This could suggest that the Orlando campus should be viewed as an autonomous campus. The data implies, however, that there is a need for the faculty of the various departments of the two campuses to meet and to develop guidelines concerning the grading procedures that should be followed. If administrative personnel feel that the comparison of achievement between the two campuses is important, then it also appears that it is important to have similar grading standards between the two campuses.

An implication of the study for the students is that they are receiving the type of curriculum and instruction at FSC Orlando that enables them to achieve at a level similar to students at FSC Lakeland. Since FSC Lakeland appears to have a reputation of high academic achievement, this data suggests that the Orlando campus also is a school of good academic creditability.

Students particularly appear to be receiving a sound curriculum and good instruction in the lower division classes and in the business department. An area of weakness at the present time, however, is the biology department. Students in the biology department and the sociology department are achieving at levels below the biology and sociology departments at FSC Lakeland.

Age does not appear to be a factor that influences academic achievement, as measured by the Advanced Test of the GRE or the Field Test of the Undergraduate Assessment Program. The students at FSC Orlando, however, did have higher grade-point averages than did the students at FSC Lakeland.

Another implication of the study for the students at FSC Orlando is that they may have the opportunity to take graduate level courses in the

future. The large number of students in business may have the opportunity to begin working toward a master's degree in Business Administration as early as next year.

Recommendations

As a result of the study the following recommendations have been made:

1. The Board of Trustees and administrative personnel at FSC Lakeland should have the opportunity to review the data and react to its significance.
2. The data should be presented to members of the Southern Association of Colleges and Universities when they visit the campus in the fall to consider the expansion of graduate courses.
3. The data should be presented to the faculty of FSC Orlando in order to sensitize them to the fact that students at the Orlando campus generally have higher grade-point averages but lower scores on the Advanced Test of the GRE. This would reinforce the current policy of administrative personnel at FSC Orlando of stressing the point that "A" grades should indicate academic excellence.
4. Faculty members at FSC Orlando should meet with faculty members at FSC Lakeland by departments in order to discuss grading policies. This does not mean that the Orlando campus should adopt the grading policies of the Lakeland campus. There should be, however, dialogue between the two departments in order to insure some consistency of grading between the two campuses.

5. The number of core courses in biology should be expanded. This would necessitate a change in the current curriculum in biology. This would also lower the number of elective courses that students who major in biology could take. Students, however, would have the opportunity to obtain a broader base of knowledge in the area of biology.
6. It is further recommended that administrative personnel at FSC Orlando should consider reducing the number of independent studies taken by students who are biology or sociology majors.
7. Students should be encouraged to prepare for the senior test. A bibliography in their major field as well as recommendations for preparing for the exam should be given to each student.
8. A yearly evaluation using a similar statistical analysis should be done in order to determine the progress of recommendations and to look for trends in various departments or the grade-point averages of students at FSC Orlando and FSC Lakeland.

FOOTNOTES

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